CHLORIDE

ONEAC Sinergy® SE II Series Parallelable UPS User Instruction Manual

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS.

Please read and save these instructions. This manual contains important instructions for ONEAC models:

- SE041XAT
- SE061XAT
- SE081XAT
- SE101XAT
- SEBP610-2
- SE041XIT
- SE061XIT
- SE081XIT
- SE101XIT
- SE041XJT
- SE061XJT
- SE081XJT
- SE101XJT

Follow these instructions during installation and maintenance of the UPS and batteries.

If you have a problem with the UPS, please refer to this manual before contacting Technical Services. The Troubleshooting section on page 31 addresses most UPS-related issues.

Chloride North America
27944 North Bradley Road
Libertyville, IL 60048-9700
USA
Telephone: (847) 816-6000
Toll Free: (800) 327-8801
Facsimile: (847) 680-5124

Chloride Europe
George Curl Way
Southampton, Hampshire SO18 2RY
United Kingdom
Telephone: +44 (0) 2380 610311
Facsimile: +44 (0) 2380 610852

Distributed by
POWERCOM
800-288-9807

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Manual Part Number 913-599 @ Rev. D 10/07

Introduction 1
Registering Your UPS 1
Technical Support 1
FCC Compliance 1
Safety Compliance 1
About This Manual 2
Symbols 2
Safety 3
Intended Use 3
General Warnings 3
Safety Notices 3
Leakage Currents 4
Batteries 4
Repacking of Unit 4
Setup 4
Delivery 4
Unpacking 4
Long Term Storage 7
Environmental Conditions 7
Floor Loading 7
Ventilation and Accessibility 7
Installation 8
External Overcurrent Protection and Isolation Devices 8
Emergency Switch Device (ESD)/Remote Power Off (RPO) Function 8
Connections 9
Rear Panel 11
Cable Sizes and Current 12
Output Terminal Voltage 13
External Battery Installation 14
UPS Operation 15
UPS Mode 15
Bypass Mode 15
Battery Mode 15
Control Panel 18
Control Panel Menu Flow Chart 19
Control Panel Menus and Displayed Text/Options 20
Warning and Fault Indicators 22
UPS Start-Up & Shut Down 23
UPS Start-Up Procedure 23
UPS Shutdown Procedure 23
Maintenance Bypass Procedure 23
Return from Maintenance Bypass Procedure 24
Remote Power Off/Emergency Power Off 25
Functional Test 26
Battery Test 27
Maintenance 27
Storage 27
Battery Maintenance and Disposal/Recycling of Batteries 27
Interfaces 28
Serial Interface COM 3 29
Interface Slot COM 29
Optional Isolated Contacts Card 30
Troubleshooting 31

Appendix A: Features and Specifications 32
Features 32
Specifications 33
Appendix B: Paralleling UPS Devices 35
Installing a Parallel System 38

Introduction

Thank you for selecting this uninterruptible power supply (UPS). ONEAC's Sinergy SE II Series UPS offers the most reliable protection from the harmful effects of electrical line disturbances for your computing and communications equipment. ONEAC's ISO 9001 certification represents our commitment to building world-class products. We take pride in every unit that leaves our facility.

Registering Your UPS

To ensure that your Sinergy SE II Series UPS model and serial number are registered, complete and mail the enclosed postage-paid warranty card or go on line at www.chloride-na.com.

Technical Support

To contact Chloride's 24-hour technical services:

- North America: (847) 816-6000, option 3
  or toll free (800) 327-8801, option 3.
- email: ts@oneac.com.

NOTE: *All emergency calls received before 7 a.m. or after 7 p.m. Central Standard Time returned within one half hour. All non-emergency calls will be returned the next business day.*

Please check with technical services before attempting to repair or return any product. If an product needs repair or replacement, technical service issues a Return Material Authorization (RMA) number along with instructions on how to return the product.

FCC Compliance

ATTENTION: *Changes or modifications to this unit not expressly approved by the party responsible or in FCC compliance could void the user's authority to operate the equipment.*

This equipment was tested and complies with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the UPS is operating in a commercial environment. The UPS generates, uses, and can radiate radio frequency energy. If installation and use is not in accordance with the instruction manual, it may cause harmful interference to radio communications.

ATTENTION: *Operation of this equipment in a residential area may cause harmful radio communications interference. The user is responsible for correcting the interference.*

Safety Compliance

UL listing to UL1778

TUV compliance to EN62040-1

CE

About This Manual

This manual contains information regarding the installation, operation and use of the Uninterruptible Power Supply (UPS).

Consult this manual before installation of the equipment, which should be performed only by qualified personnel. This User's Manual should be kept for later reference for operation and maintenance of the UPS.

These instructions may be supplemented with additional sheets, describing specific extensions or options.

Symbols

The following symbols are used in this manual:

ATTENTION: *Indicates instructions, which if not observed, may endanger reliability of your UPS or the security of your data.*

WARNING: *Indicates instructions, which if not observed, present risk of electric shock, may endanger your life, your health, reliability of your UPS or the security of your data.*

Safety

Intended Use

This device serves as an uninterruptible power supply for connected loads. The UPS is in compliance with all relevant safety regulations concerning information technology equipment, for use in an office environment.

Depending on the type and rating of UPS, certain configurations of battery extensions may be connected. These battery extensions may only be connected to the compatible basic UPS unit.

General Warnings

WARNING: *We consider the safety of personnel to be of paramount importance. For this reason it is essential that procedures relating to safety in this manual be carefully reviewed before commencing work, and properly adhered to thereafter. The User or Operator may intervene in the operation of the UPS provided that the instructions laid out in the section titled "UPS Start-Up & Shut Down" on page 23 are strictly followed.*

WARNING: *The installation of the UPS, described in the section titled "Installation" on page 8, may only be carried out by qualified technical personnel according to local and national electrical codes such as the NEC®.*

WARNING: Even when all switches and/or circuit breakers are open, dangerous voltages are present within this unit! *There are no user-serviceable parts inside. Only factory authorized technical personnel may carry out any operation that requires protection panels to be opened and/or removed. Any repairs or modifications by the user may result in out-of-warranty repair charges, unsafe electrical conditions, or violation of electrical codes.*

Safety Notices

WARNING: Read the following safety notices carefully! Disregarding these safety notes may endanger your life, your health, and the reliability of your UPS and the security of your data.

- Transport the unit only in suitable packaging (protected against jolts and shocks).
- If the equipment is moved from a cold environment to a warmer operating location, condensation may occur. Before you switch on the equipment it must be absolutely dry. An acclimatization period of at least two hours is required.
- The equipment must be installed in accordance with the environmental conditions specified in "Environmental Conditions" on page 7 and Table 2, "Installation Data," on page 8.
- Even with all buttons and circuit breakers in the "OFF" position the UPS is not isolated from the mains. To isolate completely from the mains, the power cables must be disconnected.
- This UPS device receives power from more than one source. The output terminals and/or receptacles may have voltage present even when the input is disconnected. UPSs present a different safety issue than most electrical equipment because unplugging the UPS may cause the UPS to operate in battery or backup mode. Disconnecting the UPS input does not remove the electrical charge.
- In case of interruption of the mains voltage, the integrated battery maintains the power supply to the user's equipment.
- Lay all cables so that nobody can stand on them or trip over them. Only connect input and output cables (or battery cables when external battery cabinets are used) by following the installation guidelines provided in this user manual and by referring to applicable codes.
- Make sure that no metal objects (e.g. pins, necklaces, paper clips, etc.) are introduced or left inside the UPS.
- In emergencies (e.g. damaged case, controls or power cables, penetration of liquids or foreign matter) switch off the UPS and contact Technical Support for assistance.
- Do not connect equipment that will overload the UPS or equipment that is designed to draw DC-current.
- When cleaning the unit, follow the instructions in the section titled "Maintenance" on page 27.
- The sum of the leakage currents (protective conductor current) of the UPS and the connected UPSs exceeds 3.5 mA for all ratings of the UPS. Ground (earth) connection is essential before connecting supply.
- Data transmission lines should not be connected or disconnected during a thunderstorm.
- The Remote Power Off (RPO/ESD) contacts are located on the rear of the unit (Figure 9). When this connection is open, the logic circuit will immediately shut down the UPS output.

- The maintenance bypass switch is intended for use by experienced service personnel only. It is located at the back of the unit, behind a safety cover (refer to Figure 9). Open the safety cover to locate and operate the maintenance bypass switch. Instructions for operating the maintenance bypass switch must be followed or damage to UPS may occur.

Leakage Currents

WARNING: *Connect the ground (earth) safety conductor before any other cables are connected.*

Batteries

WARNINGS:

- Battery maintenance should only be performed by authorized personnel.
- Batteries installed in the UPS or within the external battery cabinets contain electrolyte. Under normal conditions the battery cases are dry. A damaged battery may leak electrolyte that can be dangerous when it is in contact with the skin and cause irritation to the eyes. Should this happen wash the affected part with copious amounts of water and seek immediate medical attention.
- Voltage is always present on the battery terminals.
- Even when discharged, a battery has the capacity to supply a high short circuit current, which, in addition to causing damage to the battery itself and to associated cables, may expose the operator to the risk of burns.
- Batteries should not be kept in storage for periods exceeding 6 months at 77°F (25°C) without being recharged (having been charged to 100% at the beginning of any such period). If these conditions are not respected, the performance of the battery can no longer be guaranteed. It is advisable to recharge the batteries at least once every 4 months.
- Since new batteries often do not provide full capacity after an initial charge it may be necessary to carry out a number of discharge/recharge cycles before optimum performance is achieved.
- In order to protect the environment, batteries must be disposed of in accordance with the regulations governing disposal/recycling of toxic and harmful waste.

Repacking of Unit

Do not pack the UPS or external battery cabinets until at least six (6) hours have elapsed since the last battery recharge.

Place the equipment in bags made of a material sufficiently porous to allow it to breathe [e.g. 4 mil (100µm) polyethylene].

Do not remove air from the packaging.

When packing unit for movement by common carrier, place on original, or equivalent pallet and repack in original, or equivalent crate/carton material. See figures 1-4.

Setup

Delivery

The equipment has been thoroughly checked before shipment. Upon receipt, check the packaging and ensure that the contents are undamaged. Any damage must be reported to the shipper and any missing parts must be reported to the supplier immediately.

Unpacking

Care should be taken when removing the packaging in order to avoid damaging the equipment. Check all packaging materials to ensure that no items are discarded. Remove the packaging following the sequence illustrated in figures 1-4.

Tools Required

- Hand operated pallet jack
- Scissors
- Screwdriver

ATTENTION: *The equipment must be kept upright at all times and handled with care; damage may be caused if dropped or subjected to severe impact.*

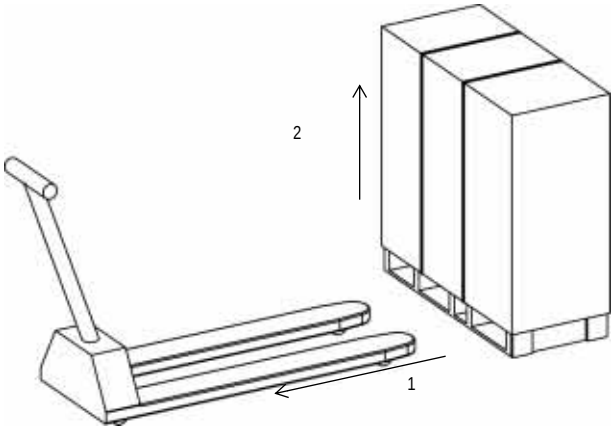

Fig. 1: Step 1: Remove Strapping

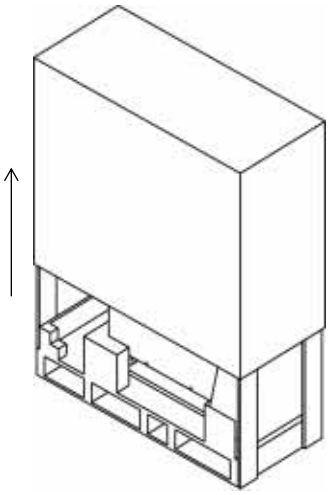

Fig. 2: Step 2: Lift Carton Cover

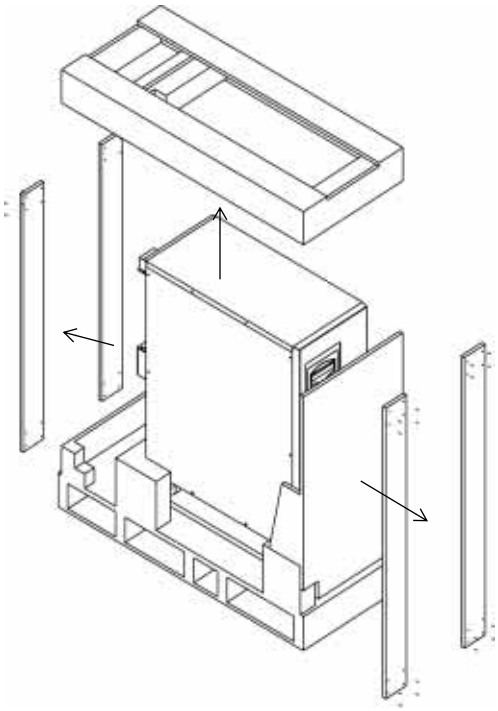

Fig. 3: Step 3: Remove Bracing

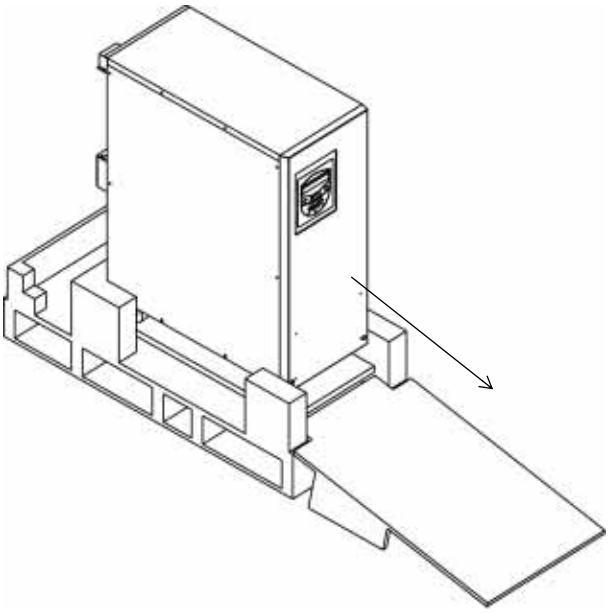

Fig. 4: Step 4: Slide Down Ramp

Included with the UPS are two L-shaped tie-down brackets to prevent the UPS from being moved. These brackets are secured to the unit and then to the floor where the UPS will be positioned.

ATTENTION: *To ease movement over short distances the UPS is fitted with wheels. Before removing the UPS from the pallet, raise the leveling feet on the unit.*

Long Term Storage

If the UPS is to be stored prior to use, it should be stored in a clean, dry environment and away from temperature extremes. It is recommended that the equipment be stored in a temperature controlled, moderate humidity environment. Table 1 below provides the temperature and humidity storage limits:

Table 1. Storage Data

Temperature limits -Batteries ONLY	32°F to 104°F (0°C to +40°C)
Temperature limits - UPS without batteries	-13°F to 131°F (-25°C to +55°C)
Temperature limits – UPS with batteries	32°F to 104°F (0°C to +40°C)
Relative humidity (non-condensing)	0% to 90%

NOTE: *When storing equipment, every 8°C above 25°C reduces the shelf life of the battery by 50%. More frequent battery charging is required to maintain the batteries in storage at these greater temperatures.*

Environmental Conditions

The UPS must be installed vertically on a level and even surface and in an area protected from extremes of temperature, water, humidity and the presence of conductive powder or dust (See Table 2 on page 8). Do not stack units and do not place any objects on top of a unit.

The functional temperature range of the UPS is 32°F to 104°F (0°C to 40°C).

The ideal ambient temperature range is 60°F to 77°F (15 °C to 25°C).

Expected battery runtimes and battery life is based on operational temperatures between 68°F and 77°F (20°C and 25°C). Operation of the equipment above 77°F (25°C) reduces the service life of the batteries dramatically.

Floor Loading

Taking into consideration the weight of the UPS as shown in Appendix A: Features and Specifications , it is necessary that the floor in the chosen location be capable of supporting the weight of the unit.

Ventilation and Accessibility

The area chosen for the UPS must have sufficient space for the installation to be completed. Access doors must be sufficiently sized to permit clearance of the unit, see “Installation” on page 8

It is necessary to leave a minimum space of at least two inches (50 mm) around the side and rear panels to allow a flow of air.

Electrical maintenance and servicing, which may involve removal of the panels (see Figure 5) requires access to all four sides of the UPS. Provide the necessary space or use a flexible wiring system to allow movement of the UPS.

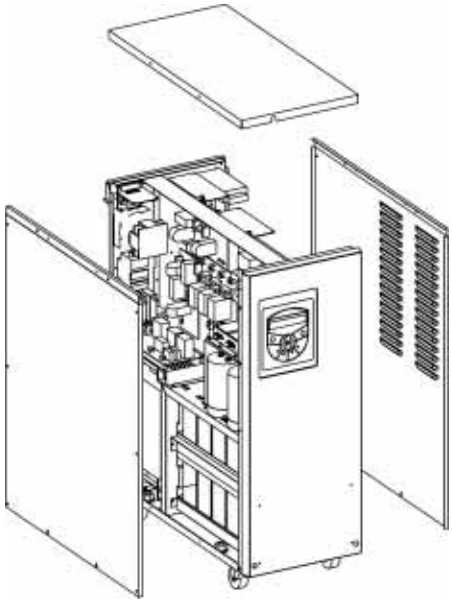

Fig. 5: Accessibility - Removable Panels

Installation

WARNING: *Before connecting any input wiring to the UPS, take precautions to insure that all circuits being worked on are de-energized and proper lock-out/tag-out procedures have been followed. This is to ensure that the live input source cannot accidentally be connected to the UPS during installation.*

WARNING: *Installation and operation should only be performed by qualified electrical personnel and in conformity with local and national codes and applicable safety standards.*

WARNING: *Electrical shock hazard: Even when the UPS is disconnected from the mains, hazardous voltages may still exist inside the UPS. The UPS receives power from more than one source—AC input and DC input from batteries. All input sources (AC and DC) must, therefore, be disconnected before carrying out installation or maintenance work inside the UPS.*

Table 2. Installation Data

Ambient temperature	32°F to 104°F (0 °C to 40C°)
Relative humidity (non condensing)	90%
Environment	Controlled (i.e. Office or equivalent)
Max. altitude	3280 ft. above sea level (1000 m.a.s.l.)
Cable inlet	Rear Center
Air inlet	Front and Sides
Air outlet	Rear

NOTE: *IEC/EN 62040-1 specifications do not include operation over 1000 meters. Contact ONEAC Technical Services for other applications.*

ATTENTION: *Some particularly sensitive electronic equipment may be susceptible to interference; in order to prevent this it is suggested that input, output and any external battery cables to the UPS be housed in properly grounded, metal conduits or that shielded cables be used. Routing of cables (e.g. power supplies, communication or data lines) to other equipment should be kept separate from that of UPS cables.*

External Overcurrent Protection and Isolation Devices

External devices for the protection of wiring and for isolating the UPS should be installed upstream of the equipment. Select and configure the isolating device by referring to Table 3, “Fuses or Circuit Breakers,” on page 8. These devices must be designed to work with inductive loads such as transformers. Devices should be provided in building installations and other locations.

The following table indicates the recommended size of input protection devices (circuit breakers and fuses) that should be installed for the protection of both wiring and equipment.

Table 3. Fuses or Circuit Breakers

Description	4 & 6 kVA	8 & 10 kVA
Input: Fusible Disconnect/Breaker	40 Amps	70 Amps

To avoid spurious operation using GFCI breakers, these breakers must:

- be rated at differential current NOT LESS THAN 100 mA.
- be a SELECTIVE type (delayed intervention).

Emergency Switch Device (ESD)/ Remote Power Off (RPO) Function

For reasons of safety, a device having the characteristics of an Emergency Off button must be installed externally of the UPS. This UPS is equipped with separate terminals for connecting hardwired customer protection ESD relays.

These external terminals, labeled “RPO,” are located next to the 9 pin SUB-D (interface COM3) connector on the upper back section of the unit, see Figure 9.

If the circuit between the two RPO connector pins is “opened,” the output of the UPS is immediately switched off.

The RPO circuit may be extended by connecting normally closed switches in series between the RPO connection pins. Activating (opening) any of the series switches will causes the UPS to shut off its output.

Connections

WARNING: *Confirm that all circuit breakers/switches feeding power to UPS are "Open" and locked out per lock-out/tag-out procedures.*

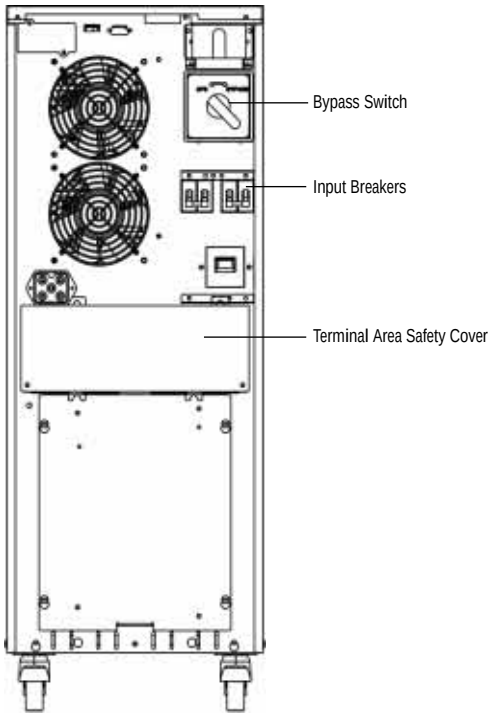

Fig. 6: Sinergy SE Series UPS Rear View

1. Open UPS input breakers (Main 1 & Bypass), Fig. 6.
2. Remove maintenance bypass switch safety cover.
3. Set maintenance bypass switch to "Bypass," Fig. 6
4. Remove terminal area safety cover, Fig. 6.

NOTE: *If the UPS is fitted with an optional PDU, remove cover from PDU.*

In order to gain access to the external electrical connections the rear wiring box protection panel of the UPS must be removed. All wiring must be placed in proper conduits, and all cabling must be strain relieved per local and national codes. See Table 4, "Cable Sizes," on page 12.

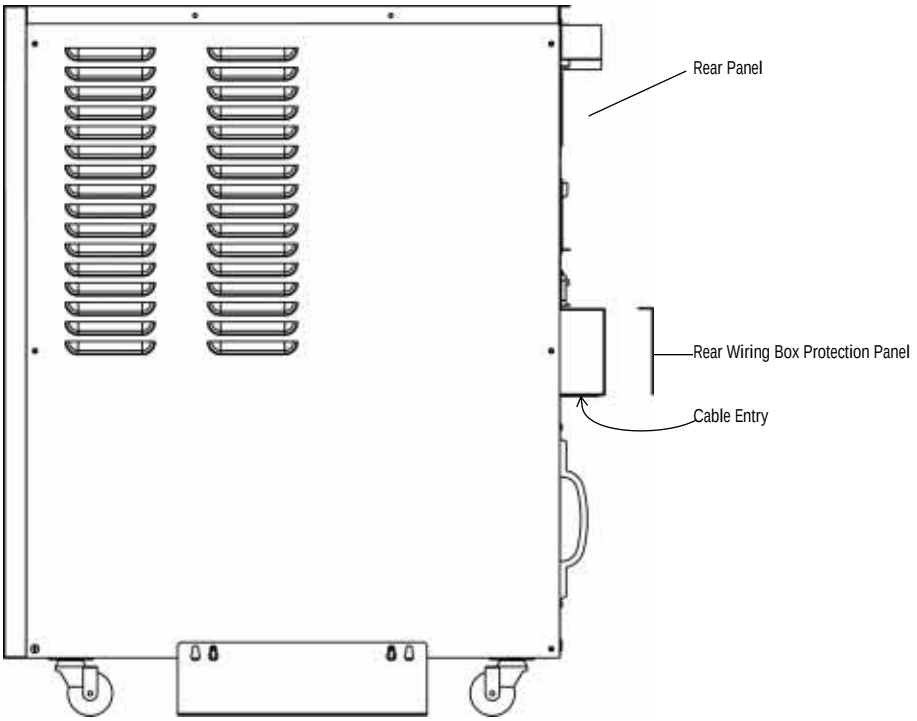

Fig. 7: Side view

WARNING: *Connect the ground cable first.*

WARNING: *Ensure that the UPS is isolated from ALL AC & DC sources before removing panels.*

Connecting Power Cables

(Refer to section titled Table 4, “Cable Sizes,” on page 12)

5. Connect loads to “Output” terminals.

ATTENTION: *If using separate inputs for Mains and Bypass, it is imperative that the inputs be in phase. Failure to correctly recognize and adhere to this requirement will cause serious damage to the UPS.*

6. Connect mains to the corresponding input terminals. UPS can utilize a single input (using same input for both Mains and Bypass inputs) or two separate inputs (from same transformer and using same phases, for separate Mains and Bypass inputs)
   - If the UPS is supplied by a single source, connect jumpers from JL1 to BL1 and from JL2 to BL2. Input is connected to Main Line (ML1 & ML2) terminals. See Figure 8.
   - If the bypass input is supplied separately, connect bypass line to the Bypass (BL1 & BL2) terminals. Input is connected to Main Line (ML1 & ML2) terminals. Do not connect jumpers to JL1 or JL2. See Figure 8.
7. If UPS is to be operated as single unit connect a jumper between S1 and S2. See Figure 8.
8. If UPS is to be operated as parallel unit ensure that no jumper is connected between S1 and S2.

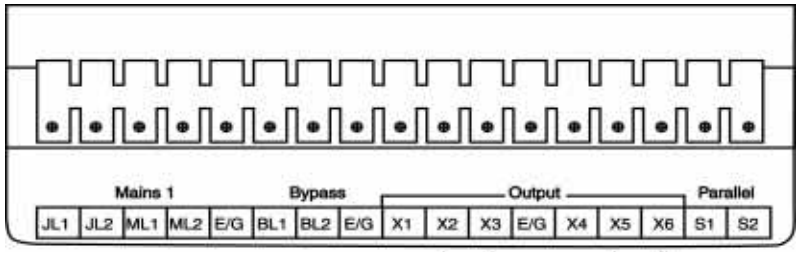

Fig. 8: Terminal Block

***NOTE:** Once installation has been completed, the vertically adjustable feet on the UPS must be used to fix it in position.*

Rear Panel

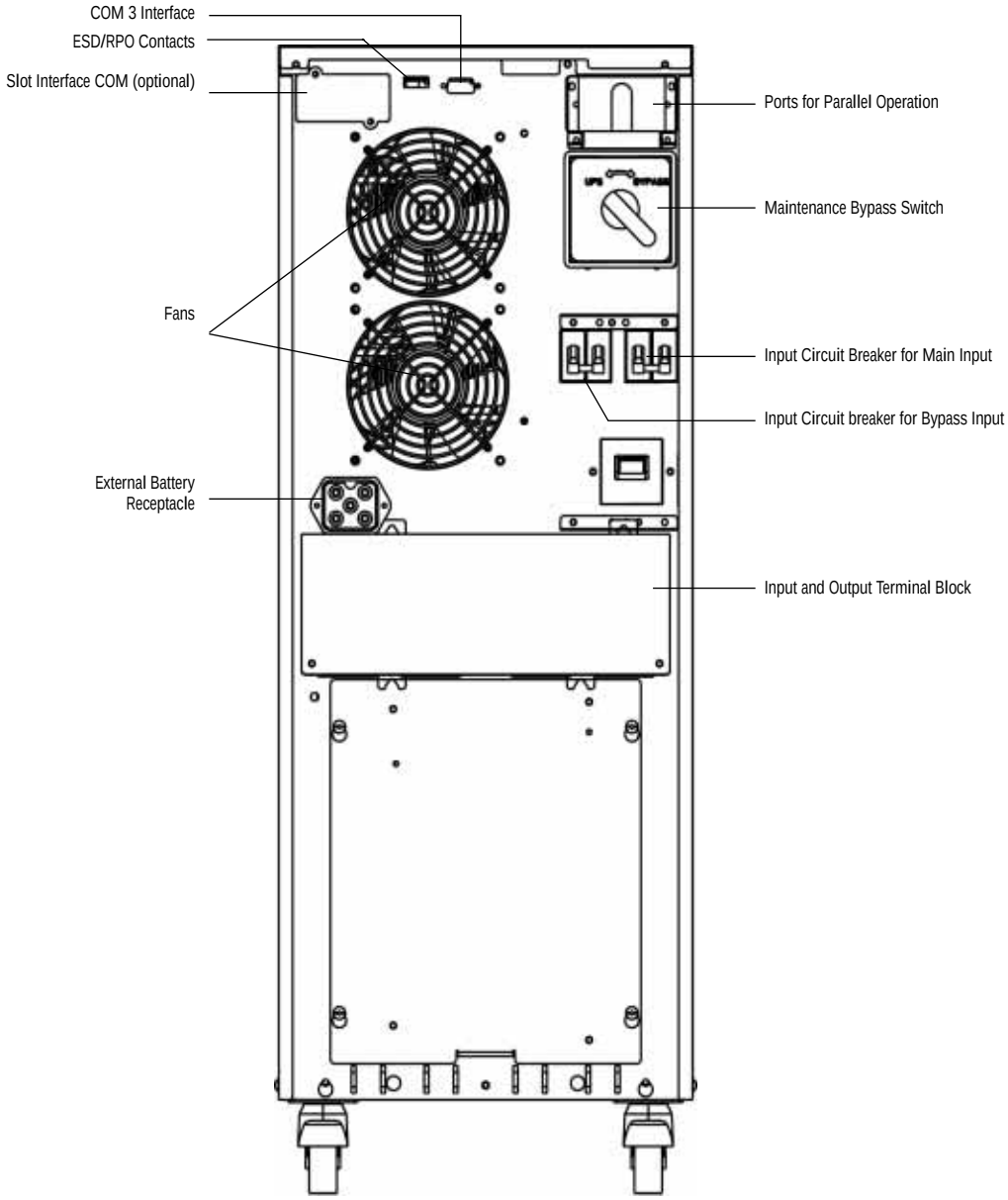

Fig. 9: Rear View

Cable Sizes and Current

The following table indicates the recommended sizes of conductors in accordance with the NEC®. (Air temperature surrounding the conduits not greater than 104°F (40°C).)

NOTE: *Cable sizes are suggested and based on standard configurations. Installers should verify correct conductor sizes pursuant to NEC® and/or state or local codes. If the installation requires long conductor runs, consult NEC® and/or state or local codes to account for electrical losses.*

Table 4. Cable Sizes

	Term ID	Description	6 kVA (4 kVA)			10 kVA (8 kVA)		
			main wire gauge (awg	term torque (in-lbs)	min wire temp (°C)*	main wire gauge (awg	term torque (in-lbs)	min wire temp (°C)*
JMP	JL1	Line 1 (Jumper) ‡	8	22	90	6	22	90
	JL2	Line 2 (Jumper) ‡	8	22	90	6	22	90
MAIN	ML1	Line 1 (Main)	8	22	90	6	22	90
	ML2	Line 2 (Main)	8	22	90	6	22	90
	E/G	Chassis Ground	**	22	90	**	22	90
BYPASS	BL1	Line 1 (Bypass)	8	22	90	6	22	90
	BL2	Line 2 (Bypass)	8	22	90	6	22	90
	E/G	Chassis Ground	**	22	90	**	22	90
OUTPUT‡‡	X1	Output Term 1	10	22	90	6	22	90
	X2	Output Term 2	10	22	90	6	22	90
	X3	Output Term 3	10	22	90	6	22	90
	E/G	Chassis Ground	10	22	90	6	22	90
	X4	Output Term 4	10	22	90	6	22	90
	X5	Output Term 5	10	22	90	6	22	90
	X6	Output Term 6	10	22	90	6	22	90

‡ Wire between JL1 & BL1 and between JL2 & BL2 if only single input power source is used.

‡‡ Output voltage available at output terminals dependent on specific model. See Table 5 - 7 on page 13 for details.

* Use insulated copper wire rated 90°C minimum

** Must be no smaller than wire connected to L1 and L2

NOTE: For installation per IEC regulations*: If installing units per regulations IEC-287 and DIN VDE 0298, 6 kVA model should be wired (inputs and outputs) with 6 mm^2 cable torqued to 2.5 nt-m; and 10kVA model (inputs and outputs) should be wired with 10 mm^2 cable torqued to 2.5 nt-m. (Based on 90°C cable and ambient of 40°C)*

Output Terminal Voltage

Table 5. 120/208/240 Output Terminal Voltage Configurations

	X1	X2	X3	E/G	X4	X5	X6
Terminal Voltage	(-)120	0	0	-	88	(+)120*	(+)120*
120 Volts (from X2 and X3 to X5 and X6)							
208 Volts (from X1 to X4)							
240 Volts (from X1 to X6)							

ATTENTION: **X2 & X3 are wired together, and X5 and X6 are wired together to provide full nameplate rated current at 120 V (50 A for 6 kVA model and 83 A for 10 kVA model). However, each terminal can supply only 1/2 of the total current and both terminals MUST be connected to the load in order to provide full power.*

Table 6. 120/208/230/240 Output Terminal Voltage Configurations

	X1	X2	X3	E/G	X4	X5	X6
Terminal Voltage	0	120*	-	-	208	230	240

ATTENTION: **X2 provides only 1/2 of nameplate rated current power (25 A for 6 kVA model and 40 A for 10kVA model. User must provide over current protection (fuse or circuit breaker) of proper size.*

Table 7. 100/200 Output Terminal Voltage Configurations

	X1	X2	X3	E/G	X4	X5	X6
Terminal Voltage	(-)100	0	0	-	-	(+)100*	(+)100*
100 Volts (from X2 and X3 to X5 and X6)							
200 Volts (from X1 to X6)							

ATTENTION: **X2 & X3 are wired together, and X5 and X6 are wired together to provide full nameplate rated current at 100 V (50 A for 6 kVA model and 83 A for 10 kVA model). However, each terminal can supply only 1/2 of the total current and both terminals MUST be connected to the load in order to provide full power.*

External Battery Installation

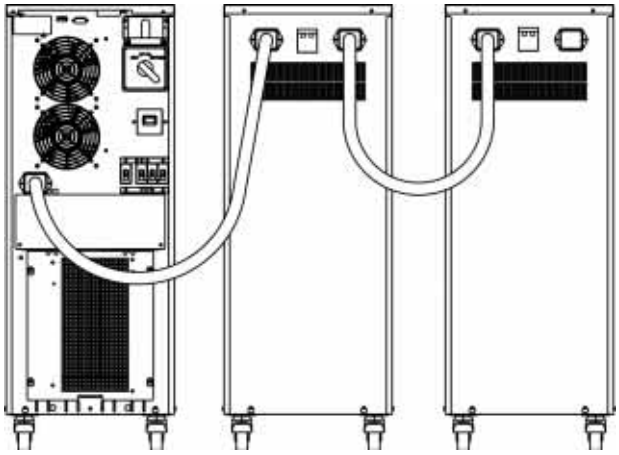

Fig. 10: Connecting External battery Cabinets

For unpacking the battery cabinets, see “Unpacking” on page 4. See page 7 to page 8 for installation considerations.

NOTE: *The battery cabinet should be placed close to the UPS while still allowing the UPS adequate ventilation.*

NOTE: *Due to the weight of each battery cabinet, see “Appendix A: Features and Specifications” on page 32 to ensure the area chosen is capable of supporting the total weight.*

Battery cabinets (1 or 2 units) can be connected to the UPS. A cable used for connecting the batteries to the UPS (or battery cabinet to battery cabinet as shown in Figure 10) is provided with each battery cabinet.

NOTE: *External battery cabinets can be replaced during “normal operation” of the UPS. However, care should be taken not to install or remove battery cabinets during an input AC power failure or during “On Battery” operation (UPS is in the status “AC Fail = On Battery”)*

NOTE: *The unit indicates an alarm condition when the battery is not connected.*

To connect an external battery cabinet:

1. Insure that the circuit breaker on the back of the external battery cabinet is in the “OFF” position.
2. Using the supplied keyed cable, plug one end of cable into the back of the battery closest to the UPS.
3. Plug the other end of the keyed cable into the UPS battery sockets.
4. Turn the external battery cabinet’s circuit breaker to the “ON” position.

NOTE: *If your UPS has an integrated battery, a compensating current may occur during connection when the circuit breaker is put in the “ON” position.*

To connect an additional battery cabinet:

1. Insure that the circuit breakers on each battery cabinet are in the “OFF” position.
2. Using the supplied cable, plug one end of the cable into the back of the additional battery cabinet.
3. Plug the other end of the cable into the first battery cabinet, see Figure 10 above.
4. Turn all the external battery cabinet’s circuit breakers to the “ON” position.

WARNING: *The installation of the UPS may only be carried out by qualified technical personnel according to local and national electric codes such as NEC.*

NOTE: *Once the battery cabinets are physically connected to the UPS, the operator will need to configure the battery string following set-up menu table on page 21.*

UPS Operation

UPS Mode

In use, the UPS is connected between the AC input power and the load. The operation of this UPS is based on the on-line principle in which the input AC power is first converted to DC, and secondarily converted back to a sine wave of a fixed frequency and voltage to supply controlled power to the load. This UPS topology is used to isolate the critical load (e.g. servers, switches, routers, etc.) from a variety of power line problems, including the total loss of input AC power.

Bypass Mode

In the unlikely event of a component failure within the UPS or a brief overload, the electronic bypass will be activated to continue supplying the load directly from the input line.

Battery Mode

In the event of a mains failure, the batteries will continue to provide an uninterrupted supply of energy to the load. In practice, most mains failures are of relatively short duration. Therefore, the energy stored in the UPS's batteries is, in most cases, sufficient to ensure continuous operation of the connected systems until the mains power is reestablished. In the event of a long lasting mains failure, the UPS can be utilized with shutdown software to enable a controlled shutdown of connected systems.

The most reliable method for determining the estimated battery runtime is the application of MopUPS® software or a ManageUPS network card. With this software, the estimated remaining battery capacity is indicated before and during an AC power failure. These products also allow for automated shutdown procedures that can shut down the attached devices after safely closing open application programs and the operating system. After return of the mains voltage, the UPS automatically restores power to the connected equipment.

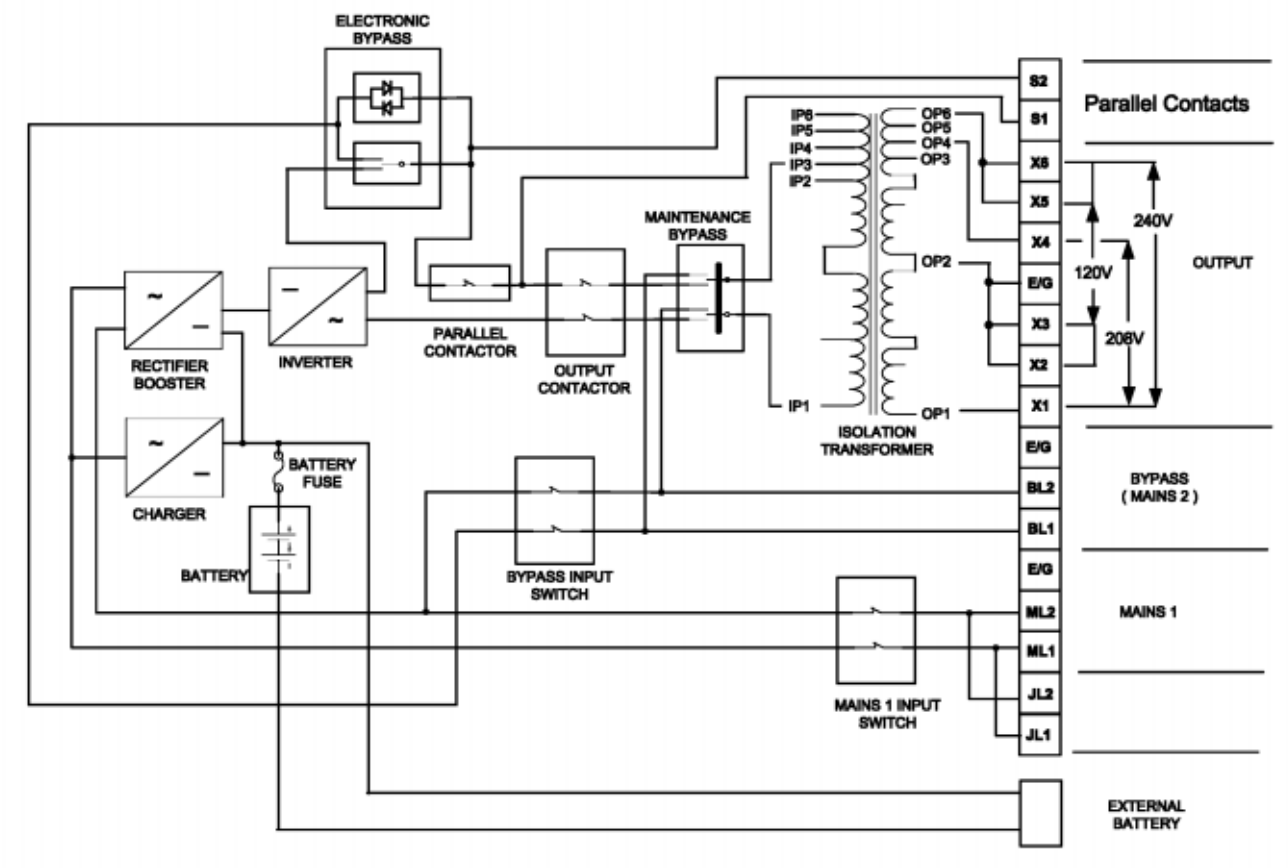

Fig. 11: Block Diagram (120/208/240 Volt output)– Typical for models with A in the part number

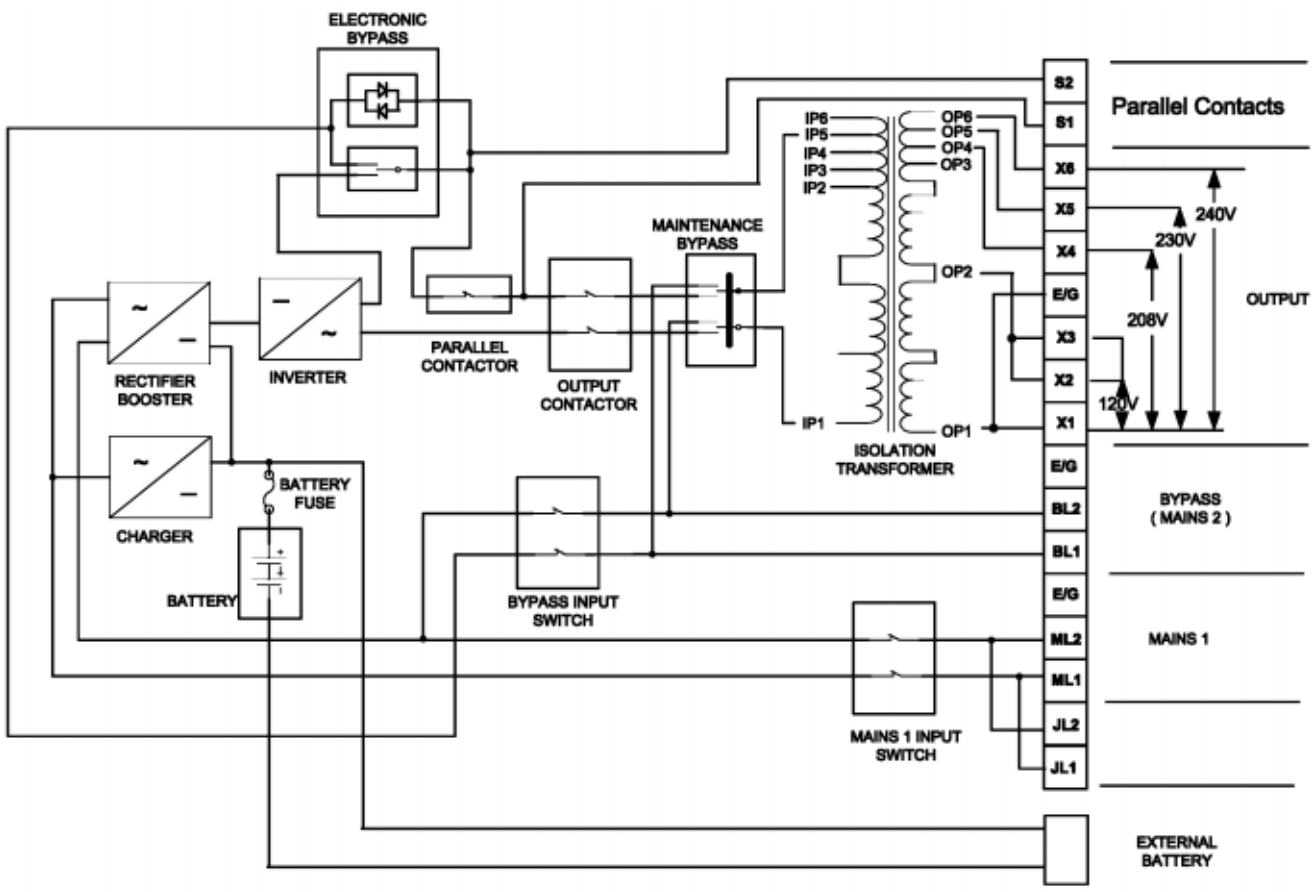

Fig. 12: Block Diagram (120/208/230/240 Volt output)–Typical for models with I in the part number

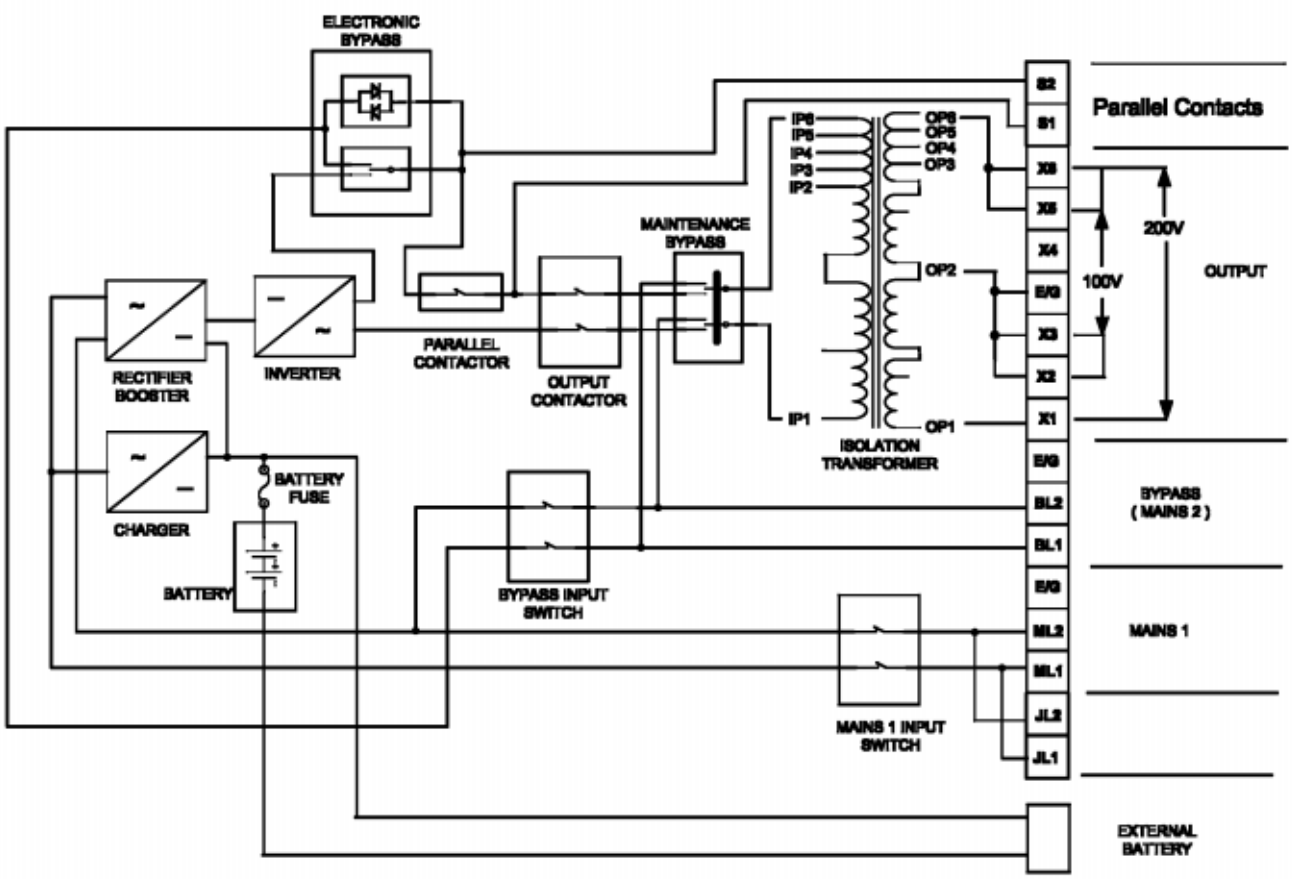

Fig. 13: Block Diagram (100/200 Volt output)–Typical for models with J in the part number

Control Panel

The front panel can be adjusted to be flush with the front of the UPS or set at an angle for easier viewing. To move front panel between positions, press the panel on the lower edge. To restore panel to flush position, reach behind panel and press center of support bracket while pressing panel down. Continue pressing panel down until it latches into the flush mount position.

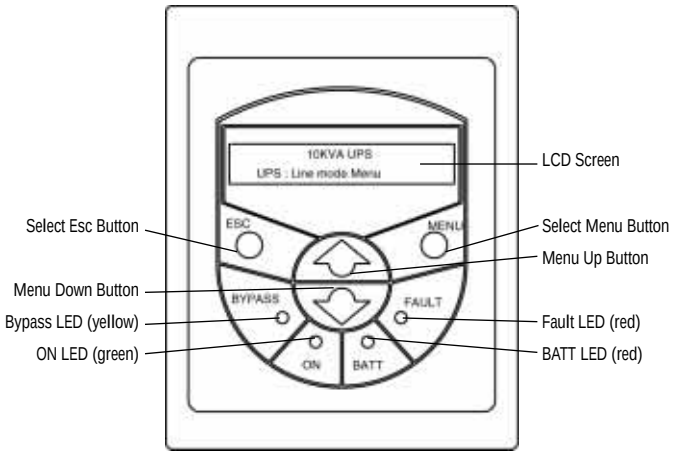

Fig. 14: Control Panel

Control Panel Messages and Audible Alarms

The comprehensive front panel display provides visual indication of unit status at any given time.

LCD screen indicates:

- Status
- Load
- Runtime
- Faults
- Menu Controls

To scroll through the menu controls on the LCD screen, press the “Menu up” or “Menu down” and “Select” buttons. Each menu has a dedicated number. See Figure 15 for menu content.

Table 8. LED Codes

LED	LED Code
Lighted LEDs:	• “ON” indicates UPS running online. • “BYPASS” indicates load fed from mains via automatic bypass. • “BATT” indicates load fed from battery. An audible alarm signal is given.
Flashing LEDs:	• “BYPASS” flashing indicates that the bypass mains are out of tolerance. •Do not give command to switch off the UPS or to switch from “Online” to “Bypass” in this status, as this would interrupt the operation of the connected critical load.

Control Panel Menu Flow Chart

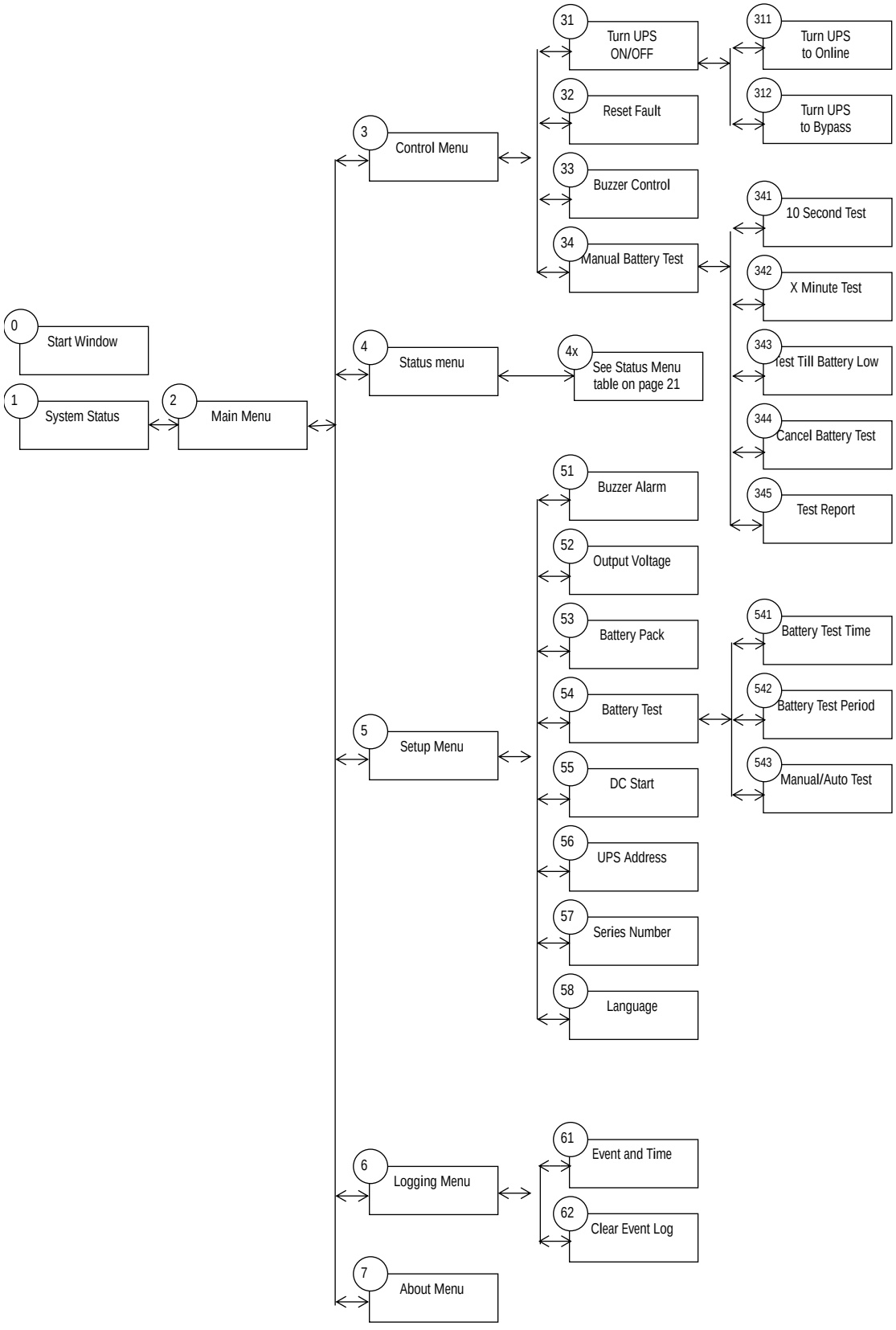

Fig. 15: System Block (Main and Sub-Menus)

Control Panel Menus and Displayed Text/ Options

Window	Description
O Start Window	UPS XX kVA Self testing please wait
	Wait about 6 seconds

Window	Description
1. System Status	UPS XX kVA UPS: “UPS Mode/Warning Table/Fault Table” Menu
	NOTE: *All UPS Mode/Warning Table/Fault Table will alternate once a second.*

Window	Description
2. Main Menu	Control
	Status
	Setup
	Logging
	About

Window	Description				
3. Control Menu	31	Turn UPS ON/OFF	311	Turn UPS t o ONLINE	
			312	Turn UPS to BYPASS	
	32	Reset Fault	Reset Fault		
			No Fault Now		
	33	Buzzer Control	Alarm On		
			Alarm Off		
	34	Manual Battery Test	341	10 Second Test	
			342	X Minute Test	
			343	Test Till Batt Low	
			344	Cancel Batt Test	
			345	Battery Test Report	No Test In Progress
					Test In Progress
					Test OK!
					Test Fail
					Test Inhibit
					Test Stop By User
					Test Autonomy
					Test Unknown

Window	Description	
4. Status Menu	Measured Value	Unit
	L1 Input Volt	V
	Input Frequency	0.1 Hz
	Output Volt	V
	Output Frequency	0.1 Hz
	Output Load	%
	Output Watt	W
	Output VA	VA
	Battery Volt	V
	Battery Capacity	%
	Back Up	Min., Sec.
	Run Time	day:hr:min:sec
	UPS ID	
	Plus BUS	V
	Minus BUS	V

Window	Description				
5: Setup Menu	51	Buzzer Alarm		Disable/Enable	
	52	Output Voltage		200/208/220/230/240 V	
	53	Battery Pack		Set up 1. (1)Internal Batt(0)External Batt20 Batt Total	
				Set up 2. (1)Internal Batt(1)External Batt60 Batt Total	
				Set up 3. (1)Internal Batt(2)External Batt100 Batt Total	
				Set up 4.(0)Internal Batt(1)External Batt40 Batt Total	
				Set up 5. (0)Internal Batt(2)External Batt80 Batt Total	
	54	Battery Test	541	Batt Test Time	1-99 Minutes
			542	Batt Test Period	7-180 Days
			543	Manual Auto Test	Manual/Auto
	55	DC Start		Disable/Enable	
	56	UPS Address		0-31	
	57	Series Number		00000-99999	
	58	language		7 Languages	

Window	Description	
6. Logging Menu	61	Event and Time*
	62	Clear Event Log
	***NOTE:** * Maximum four fault event records.*	

Window	Description
7. About Menu	VXXXXX & Date (UPS Version & Date)
	DSP Version XXXXX (Software Version)

Warning and Fault Indicators

If a warning indication appears, the UPS continues to operate. The warning message alternates with UPS mode once a second. The various warnings indicators and their corrective steps are listed in Table 9 below.

Table 9. Warning indicators

Warning	Cause	Corrective Steps
1.	Batt under volt.	Call Technical Support
2.	Utility failure	Restore utility power
3.	L1 failure	Check input circuit breaker/fuse
4.	Over temp. 65	Check/clear fans and/or reduce ambient temperature

Fault indicators

If a fault occurs, the UPS automatically switches to BYPASS operating mode; ONLY in case of a battery disconnect fault will the original operating mode be maintained.

The fault message alternates with UPS mode once a second, the red fault LED illuminates on the control panel and the buzzer sounds continuously.

If a fault occurs, proceed as follows:

Table 10. Fault Windows

Action	Window	Details
Buzzer alarm	33	The buzzer alarm can be switched ON or OFF.
Clear fault	32	Present fault condition can be reset if fault condition is cleared, either automatically or by the operator/technician.
Get fault information	6	A maximum of 4 fault events may be displayed in this window.See table 11 below for code details. All fault displays include: •the nature of the fault event •time it occurred; the time is relative to the UPS operating time.

Table 11. Fault Codes

Fault	Cause	Corrective steps
1.	DC BUS fault	Call technical support
2.	Inverter fault	Call technical support
3.	Over temperature	Reduce temperature
4.	Batt over volt.	Call technical support
5.	Batt. mode overload	Reduce load
6.	Output overload	Reduce load
7.	Output short	Call technical support
8.	Fan lock fault	Call technical support
9.	Batt. Disconnect	Check battery connector
10.	Charger failure	Call technical support
11.	RPO activated	Correct problem, restart UPS
12.	Parallel fault	Call technical support
13.	Internal fault	Call technical support
14.	Output failure	Call technical support

UPS Start-Up & Shut Down

UPS Start-Up Procedure

WARNING: *The operation of the UPS may only be carried out by qualified technical personnel according to local and national electric codes such as NEC.*

1. Ensure all switches and circuit breakers upstream (input) and downstream (output) of the UPS are open.
2. Remove the safety cover from the Maintenance Bypass Switch and switch from “UPS” to “Bypass.”
3. Ensure UPS mains connections are secured at the UPS input.
4. Close all switches and circuit breakers upstream of the UPS.
5. Close Main 1 and Bypass circuit breakers on rear panel. The control panel displays “Self testing, please wait.”
6. Wait for at least 30 seconds until the output voltage has stabilized (yellow Bypass LED illuminated). The control panel displays “UPS: Bypass Output.”
7. Switch Maintenance Bypass Switch to “UPS” position and replace cover.

   Check Setup Menu 5, see “Control Panel Menus and Displayed Text/Options” on page 20. Check and adjust parameters for language, voltage and battery pack(s) as necessary. The preset language is ENGLISH.
8. Close any external switches or circuit breakers downstream of the UPS connecting the load (if present).
9. Press the “MENU” button.
10. Select submenu “Control.”
11. Press “OK”.
12. Select submenu “Turn UPS ON/OFF” and press “OK.” The control panel displays “Turn UPS to ONLINE.”
13. Press “OK” to switch on the inverter. The green “ON” LED is illuminated.

UPS Shutdown Procedure

ATTENTION: *Carrying out this procedure will interrupt the supply to the connected critical load.*

1. Press the “MENU” button.
2. Select submenu “Control.”
3. Press “OK.”
4. Select submenu “Turn UPS ON/OFF” and press “OK.” The control panel displays “Turn UPS to BYPASS.”
5. Press OK to switch off the inverter.
6. The display reads: “UPS Bypass Output” and Bypass LED is illuminated.
7. Open any external switches or circuit breakers downstream of the UPS connecting the load (if present).
8. Open both input circuit breakers (Main 1 and Bypass).
9. Ensure all switches and circuit breakers upstream of the UPS are open.
10. Ensure that all LEDs on the control panel are extinguished. The UPS is now completely shutdown.

WARNING: *Electrical shock hazard: Even when the UPS is disconnected from the mains, hazardous voltages may still exist inside the UPS. The UPS receives power from more than one source—AC input and DC input from batteries. All input sources (AC and DC) must, therefore, be disconnected before carrying out installation or maintenance work inside the UPS.*

Maintenance Bypass Procedure

1. Press the “MENU” button.
2. Select submenu “Control.”
3. Press “OK.”
4. Select submenu “Turn UPS ON/OFF.”
5. Press “OK.” The control panel displays “Turn UPS to BYPASS.”

6. Press “OK” to switch off the inverter.
7. The display reads: “UPS Bypass Output” and Bypass LED is illuminated.
8. Remove the safety cover from the Maintenance Bypass Switch and switch from “UPS” to “Bypass.”

ATTENTION: *At this point the critical load is no longer protected by battery backup during interruptions and disturbances on the mains supply.*

9. Open both input circuit breakers (Main 1 and Bypass).
10. The UPS is now switched off, all LEDs are extinguished and the load is supplied directly from the mains supply via bypass.

Return from Maintenance Bypass Procedure

1. Ensure all switches and circuit breakers upstream of the UPS are closed.
2. Close both input circuit breakers (Main 1 and Bypass).
3. Wait for at least 30 seconds until the output voltage has stabilized (yellow “Bypass” LED illuminated). The display reads: “UPS: Bypass.”
4. Switch the Maintenance bypass switch from “Bypass” to “UPS” and replace the cover.
5. Press the “MENU” button.
6. Select submenu “Control.”
7. Press “OK.”
8. Select submenu “Turn UPS ON/OFF.”
9. Press “OK.” The control panel displays “Turn UPS to ONLINE.”
10. Press “OK” to switch on the inverter. The green “ON” LED is illuminated. The UPS is now in ONLINE operation.

Remote Power Off/ Emergency Power Off

0.0.1 (RPO)/(EPO)

The Remote Power Off (RPO) / Emergency Power Off (EPO) circuit enables the operator to disconnect the UPS from the load either remotely or during an emergency situation. The external connection to the RPO circuit is located next to the 9-pin SUB-D (interface com 3) connector on the back panel of the unit.

If the circuit between the two RPO connector pins is "opened," the output of the UPS is immediately switched off and the unit is immediately put into a FAULT mode.

CAUTION: *The Mains/Bypass input to the UPS and the battery string are still energized.*

To restart the UPS, the following procedure must be followed:

1. When the RPO circuit is "opened", the UPS will immediately terminate power output to the load. At the same time the fault alarm "RPO Activated" (Fault 11) on page 22 will be triggered, the audible alarm will be activated, the FAULT light on the Control Panel will be illuminated, and the display will scroll the following messages: EPO ACTIVATED / FAULT MODE / NO OUTPUT. The unit will remain in this state until the operator terminates the fault mode.
2. To terminate the FAULT MODE and shut down the UPS the operator must follow the following two steps:

   The operator must switch both the mains and bypass breakers, located on the right side of the rear panel, to the "OFF" or down position. Note: At this time an additional message, UTILITY FAILURE, will be added to the scrolling display. This confirms that the commercial power is off.

   The operator should then go to the LCD panel on the front of the unit and press the MENU Button (OK) to exit the FAULT MESSAGE display and go to the CONTROL menu. Press the MENU (OK) button again to access the screen that displays TURN UPS ON/OFF and RESET FAULT. Press the down arrow (button) to select RESET FAULT, Press MENU (OK) twice and the unit will display a SHUT DOWN PENDING message and then shut down within 5 seconds.
3. Once the unit is completely shut down it should not be restarted until the RPO/EMO event has been corrected. Once the RPO/EMO switch has been reset to its service mode the UPS may be restarted.
4. To restart the UPS, the operator should first switch bypass breaker and then the mains breaker, located on the right side of the rear panel, to the "ON" or up position. The UPS will automatically restart and begin a system self check routine and then power up in the BYPASS mode. After approximately 15-20 seconds the unit will return to the state it was in prior to the fault condition.

NOTE: *Switching the mains on first may result in a Fault Message.*

NOTE: *The system default is to return to the mode it was operating in prior to the RPO/EPO event. This will typically be the ONLINE mode.*

NOTE: *If during previous operation of the UPS, a state other than ONLINE mode was selected, the operator will need to intervene to return the UPS to the ONLINE mode.*

The RPO circuit may be physically extended by connecting normally closed switches in series between the RPO connector pins. Activating (opening) any of the series switches will cause the UPS to shut off its output.

Functional Test

To test readiness of the UPS, a functional test can be performed.

ATTENTION: *Supply to the load is not guaranteed during this test. It should not be carried out if a critical load is connected to the UPS.*

Simulate a mains failure by interrupting the mains supply to the UPS. If the UPS is operating correctly and the batteries are fully charged, the following will occur:

- An acoustic signal at intervals of 4 seconds will be heard
- The “ON” LED indication will be extinguished
- The “BATT” LED will be lit.

Once the interval between the acoustic signals has decreased to 1 second, the UPS will continue to supply energy via the batteries for a maximum of 3 more minutes, after which it will automatically switch off.

The load will be supplied from the batteries during the specified emergency supply period. If this does not occur, see “Troubleshooting” on page 31.

If the test is successful, restore the UPS mains supply. The UPS is ready for operation.

NOTE: *The batteries must be recharged before the complete emergency supply period is again available.*

Battery Test

To test batteries, follow the procedure below.

1. Press the “MENU” button.
2. Select submenu “CONTROL” and press “OK.”
3. Select submenu “MANUAL BATT TEST” and press “OK.”
   A single acoustic signal confirms testing and the load will be supplied by the battery.

NOTE: *During the test an acoustic signal will be heard as though the UPS is operating in battery mode.*

If the test is successful, the “BATT” LED will extinguish and the UPS will return to “On-Line mode.”

If the UPS detects a battery malfunction, an alarm will be displayed.

Maintenance

Do not use abrasive powder or plastic-dissolving solutions to clean the UPS.

Do not allow liquid to penetrate the interior of the UPS.

Cleaning

Make sure that the air vents on the UPS are not obstructed. Remove dust from the air vents with a vacuum cleaner.

Clean the outside of the UPS housing by wiping with a dry or a slightly damp cloth.

Storage

For extended storage at an ambient temperature < 77°F (25°C) the batteries should be charged for 5 hours once every 4 months; at higher storage temperatures it is advised that this period be reduced to two months.

To charge the batteries while in storage:

1. Connect the UPS to an appropriate source (refer to “Installation” on page 8 for more details).
2. Switch on the Main 1 input circuit breaker at the rear of the UPS.
3. After 5 hours, switch off the Main 1 input circuit breaker.
4. Disconnect the mains supply to the UPS.
5. Note the date recharging was carried out on the UPS packaging.

Battery Maintenance and Disposal/ Recycling of Batteries

WARNING:

- Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions.
- The batteries installed in the UPS and in the external battery cabinets contain electrolyte. Under normal conditions the containers are dry. A damaged battery may leak electrolyte that can be dangerous in contact with the skin and cause irritation to the eyes. Should this happen, wash the affected part with copious amounts of water and seek immediate medical attention.
- When replacing batteries, replace with the same type and number of batteries or battery packs.
- Do not dispose of batteries in a fire. The batteries may explode.
- Do not open or damage the battery cases. Released electrolyte is harmful to the skin and eyes and may be toxic.
- A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:
  - •Remove watches, rings or other metal objects
  - •Use tools with insulated handles
  - •Wear rubber gloves and boots
  - •Do not lay tools or metal parts on top of batteries
  - •Disconnect charging source prior to connecting or disconnecting battery terminals

The UPS does not require maintenance by the user, however, battery maintenance in recommended in accordance with IEEE Recommended Practice for Maintenance, Testing and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications (IEEE Std 1188-1996). When

the batteries expire, trained battery service personnel must replace them. A certified disposal/recycling company should carry out disposal/recycling of the UPS and/or batteries. Exhausted rechargeable batteries are classified as “harmful toxic waste” and as such the law demands that they be disposed of/ recycled by an authorized recycling center.

The manufacturer’s service center is fully equipped to deal with such batteries, in accordance with the law and with the greatest respect for the environment. Contact Technical Support to arrange for maintenance and/or battery replacement.

The typical battery life cycle is 3 to 5 years, at an ambient temperature of 77°F (25°C), however battery life is also dependent on the frequency and duration of mains failures or battery discharge cycles.

The BATTERY TEST (see section titled “Battery Test”) should be carried out periodically (6 to 12 months) in order to ascertain the general condition of the batteries.

Interfaces

The UPS is equipped with a serial interface port RS232 “COM 3” and an options interface slot “COM”.

These interfaces can be used for:

- Direct communication between UPS and a workstation/server.
- Integration of the UPS as client into a network with centralized monitoring via an optional ManageUPS Net SNMP adapter installed in the “COM” slot.
- Transfer of operational states to external alarm systems via an optional voltage-free contacts interface card, installed in the “COM” slot.

MopUPS Express Communication Software (download certificate) and serial cable are standard with the UPS. To download the MopUPS Express software:

1. Go to http://connectivity.chloridepower.com/mopexpress
2. Complete the on line registration form.
3. Download MopUPS Express.
4. Run Setup, following the screen prompts for installation.

Other communication software packages and interface cables are available as options.

Serial Interface COM 3

The 9-pole SUB-D connector (pin contacts) contains RS232 compatible signals.

NOTE: *The interface COM 3 is electrically isolated from primary UPS circuits.*

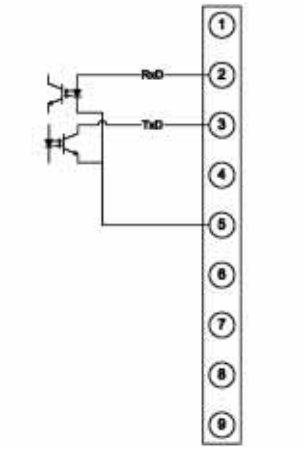

Fig. 16: Serial Interface RS232

Table 12. RS232 Pins

Pin 2	RxD (receive RS232 compatible signals)
Pin 3	TxD (transmit RS232 compatible signals)
Pin 4	not used
Pin 7	not used
Pin 8	not used
Pin 1	not used
Pin 9	not used
Pin 6	not used
Pin 5	SGN (signal ground for pins)

Interface Slot COM

The interface slot COM can be fitted with various optional interface cards.

Optional interface cards include:

- SNMP-adapter (ManageUPSNET) for connecting the UPS to a network,
- Isolated contacts card.

Installation instructions are included with each card.

Optional Isolated Contacts Card

Below are the descriptions of the interface signals for the isolated contacts card that may be installed into the COM slot. This optional card provides potential-free signaling contacts and a shutdown input.

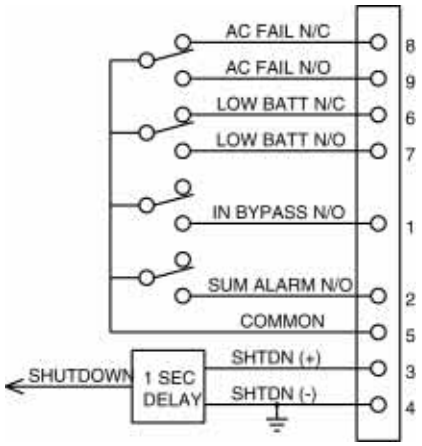

Fig. 17: Isolated Contacts Card Interface Signals

INV SHUTDOWN

This input (pin 3) is enabled with a high signal (+5 V to +12 V with respect to pin 4 (0 V)) and when enabled, switches off the UPS after a mains failure has occurred. After the mains have been reestablished, the UPS starts again independent of this signal status. This input must be high for one (1) second before shut off will occur.

AC FAIL

This output provides an N/O (Normally Open) contact between pins 9 and 5, and an N/C (Normally Closed) contact between pins 8 and 5. The 9-5 contact closes when the mains voltage fails at the UPS input or when the mains voltage falls below the lower limit for a minimum of 10 seconds. This contact opens approximately 850 ms after the mains have been reestablished. The 8-5 contact provides a mirror function, opening when the mains voltage fails and closing when main power returns

LOW BATT

This output provides a N/O contact between pins 6 and 5 and an N/C contact between pins 7 and 5. The 6-5 contact closes when the battery has been depleted to the point that it can only supply current for approximately three (3) more minutes at nominal load. The 7-5 contact provides a mirror function opening when the battery is low.

BYPASS ACTIVE

This output provides an N/O contact between pins 1 and 5. The 1-5 contact closes after switching to the bypass mode. In the bypass mode, energy to the output of the UPS is being supplied by the mains power and not through the inverter.

SUM ALARM

This output provides an N/O contact between pins 2 and 5. The 2-5 contact closes when one of the alarms “AC FAIL,” “LOW BATT” or “BYPASS ACTIVE” is active or when the indication “ALARM” at the front-panel is on.

Troubleshooting

If, in spite of the high reliability of this UPS, problems should occur, please check the following points before contacting Technical Support:

- Is the mains voltage present at the UPS input?
- Is the input fuse blown or have circuit breakers tripped?

When contacting Technical Support, please have the following information ready:

- UPS information = model #, system #, serial # as per nameplate
- An exact description of the problem (what loads are being operated, does the problem occur regularly or sporadically etc.) including any fault message description(s)
- For description of the indicators mentioned below see section titled “Control Panel”

Table 13. Troubleshooting Table

Problem	Possible cause	Corrective Actions
No indication No alarm (UPS switched off)	Mains switched off.	Switch on main switch.
	No mains voltage present.	Have mains inspected by qualified electrician.
	Input fuse blown or input circuit breaker tripped.	Replace with fuse of same type or switch on circuit breaker. If the problem persists, contact technical support.
“ON” LED does not illuminate, acoustic alarm active at intervals	No mains voltage present.	UPS operation. see “Control Panel Menus and Displayed Text/Options” on page 20
“ON” LED does not illuminate when mains voltage present, acoustic alarm active at intervals	Input fuse defective or input circuit breaker tripped.	Replace with fuse of same type or switch on circuit breaker. If the problem persists, contact technical support.
FAULT indicator illuminates, acoustic alarm active continuously	UPS error.	Contact technical support.
	Overheating	Decrease ambient temperature.
Battery run time less than specified	The fuse switch of the battery extension(s) is blown.	Check for open fuses.
	Batteries are not fully charged.	Charge batteries (see “Batteries” on page 4) and test backup time, see “Battery Test” on page 27. If the problem persists, contact technical support.
	Batteries are defective.	Contact technical support.
	Charging device is defective.	Contact technical support.
OVERLOAD message displayed	Overload at UPS output.	Reduce load to the permissible value.
No communication between UPS and PC	Wrong serial connection cable.	Check whether the correct cable has been used (standard modem/null modem cables are not permissible).
	Interface on the PC is being used by another process or is defective.	Check whether other software/service is accessing the interface on the PC; try selecting a different serial interface.
	Interference on the data cable.	Lay cable differently. Reinstall cabling.

Warranty

ONEAC products are warranted to be free from defects in materials and workmanship for two years. This warranty is limited to repairing or replacing, at ONEAC's option, any defective component, circuit board, or module contained within the product only when it is returned with an ONEAC Return Material Authorization (RMA) number to ONEAC or to an ONEAC-designated repair facility. In all cases, the customer is responsible for shipping charges to and from ONEAC or the ONEAC-designated repair facility.

Batteries

Certain modules or peripherals included with the product, but not manufactured by ONEAC, including but not limited to batteries or battery enclosures, are warranted for two years or the extent of the manufacturer's warranty, whichever is longer.

Limitations of Warranty

This limited warranty does not cover any losses or damage resulting from shipment to or from the customer, or from improper installation, inappropriate environment, abuse, modifications, adjustments, or unauthorized repair.

For full details of the warranty, see ONEAC Warranty, Policy and Procedures (part number 955-053).

Exclusive Remedies

Except as set forth herein and except as to title, there are no warranties, express or implied, or any affirmations of fact or promises by ONEAC for the products, their merchantability, or fitness for any particular purpose. In no event shall ONEAC be liable for lost profits, goodwill or any other special or consequential damages.

Return Procedure

To return a UPS, contact ONEAC Technical Support (page 1) for a Return Material Authorization (RMA) number. This number must be marked on the shipping carton and packing slip of the unit returned. The customer is responsible for repair charges for damages incurred in shipment that result from inadequate or improper packing of the product.

Appendix A: Features and Specifications

Features

Your ONEAC Sinergy SE II Series UPS features an on-line double conversion integrated isolation transformer. This provides the highest level of protection from power line disturbances available.

- Two-year warranty on power control systems
- Two-year warranty on batteries
- Hot-swappable, field replaceable batteries
- Scalable power and runtimes
- Integrated manual and automatic bypass
- Comprehensive front panel control/indicators
- Remote Power Off (RPO/ESD)
- Operates as a frequency converter

Specifications

Table 14. Specifications

UPS Model	SE041	SE061	SE081	SE101
Part number	SE041XAT SE041XIT SE041XJT	SE061XAT SE061XIT SE061XJT	SE081XAT SE081XIT SE081XJT	SE101XAT SE101XIT SE101XJT
Maximum load (VA/W)	4000 VA/2800 W	6000 VA/ 4200 W	8000 VA/5600 W	10000 VA/7000 W
Acceptable input voltage range (VAC)	176 to 276			
Nominal input voltages (VAC)	200/208/220/230/240			
Available output voltage	120/208/240 models with A in the part number 120/208/230/240 models with I in the part number 100/200 models with J in the part number			
Input frequency	50/60 Hz ±5, auto-select, input frequency 40-70 Hz			
Output current @ 208 V (Arms)	19.2	27.9	38.4	46.0
Output frequency	50/60 Hz ± 0.5%			
Frequency tolerance, normal operation	output frequency synchronized with mains frequency			
Output waveform	Sinusoidal			
Overload capacity	104%: warning; 105-125%: 60 seconds: switches to bypass; 126-150%: 10 second, switches to bypass; >150%: 2 seconds: switches to bypass			
Input connection	HW optional power cord*		HW	
Output connection	HW attached PDU (optional)		HW attached PDU (optional)	
Internal battery	(20) VRLA, 12V (YUASA NP7-12FR)		(20) VRLA, 12V (YUASA REW45-12FR)	
Battery type	sealed, maintenance-free lead acid, VRLA			
Battery test	Automatic, user selectable			
Battery recharge time to 90% available capacity	5 - 8 hours (internal batteries)			
Battery management	Automatic runtime adjustment, protection against deep discharge			
UPS dimensions - HxWxD (in.) HxWxD (cm)	31.4 x 11.8x 26.5 (80.0 x 30.0 x 67.3)			
UPS net weight lbs (kg)	325 (148)		380 (173)	
UPS ship weight - lbs (kg)	380 (173)		440 (200)	
External battery (SEBP610-2)	(40) VRLA, 12V (YUASA NP7-12FR)			
External Battery Dimensions - HxWxD (in.) HxWxD (cm)	31.4 x 11.8x 26.5 (80.0 x 30.0 x 67.3)			
External battery net weight - lbs (kg)	312 (142)			
External battery ship weight - lbs (kg)	356 (162)			
Communications slot COM)	SNMP, Isolated Contact Card			
Interfaces COM A	RS232 Interface, 9 pin SUB-D pin contacts			
Operating temperature	32°F to 104°F (0°C to 40°C) recommended 50°F to 77°F (10°C to 25°C)			
Storage temperature	5°F to 122°F (-15°C to 50°C)			
Relative humidity	20% to 90%, non-condensing			
Heat dissipation (max.)	1925 Btu/hr	2375 Btu/hr	3575 Btu/hr	4350 Btu/hr
EMC	FCC part 15, class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4 EN61000-4-5			
Overvoltage Category	category II			
* *Optional ten foot power cord available (4 kVA - 10' power cord with L6-30P; 6 kVA - 10' power cord with 6-50P). Call ONEAC for details,*				

Table 15. SE II Series UPS Typical UPS Runtimes

Model Number	Internal Battery	Internal Battery Plus 1 Ext Battery Per Power Head	Internal Battery Plus 2 Ext Battery Per Power Head
SE041 half load/full load (min)	37/15	156/66	310/130
SE061 half load/full load (min)	21/9	84/39	175/78
SE081 half load/full load (min)	21/6	73/23	140/45
SE101 half load/full load (min)	13/5	60/18	117/35

Appendix B: Paralleling UPS Devices

Larger loads may be supported with 12, 16, and 20 kVA Sinergy SE II kits, created by paralleling two 6, 8, or 10 kVA SE II units respectively. By adding a third UPS, a parallel-redundant system is created.

General information for paralleling UPSs:

- A maximum of 3 UPSs of the following ratings can be connected in parallel: 4 kVA, 6 kVA, 8 kVA, or 10 kVA
- The units to be connected in parallel must be of the same type. All configurable UPS parameters must be the same.
- On 4 kVA, 6 kVA, 8 kVA, and 10 kVA: check settings of all parallel units. The table on page 21 shows setup parameters (setup menu 5). The settings of output voltage must be the same.

General information for designing a parallel system:

- UPSs configured as a parallel system must all be configured for single input (same source to both main and bypass) mode. Jumpers must be installed between JL1 & BL1 and between JL2 and BL2 on each unit.
- When connecting mains and loads to a parallel UPS system additional distribution has to be taken into account.
- A system of two parallel UPS blocks can be connected directly to the distribution if the system load doesn't exceed the nominal power of the UPS module (configuration: half load, two module parallel system)
- If the systems load is greater, another UPS must be added to provide the additional capacity.

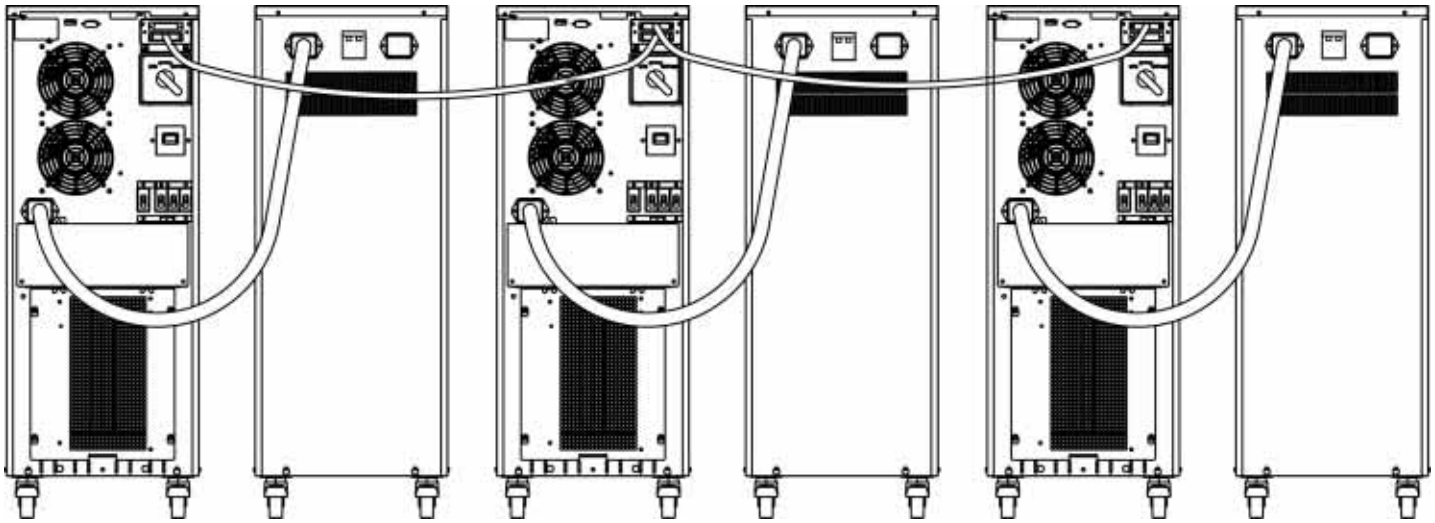

Fig. 18: Typical Parallel Set Up

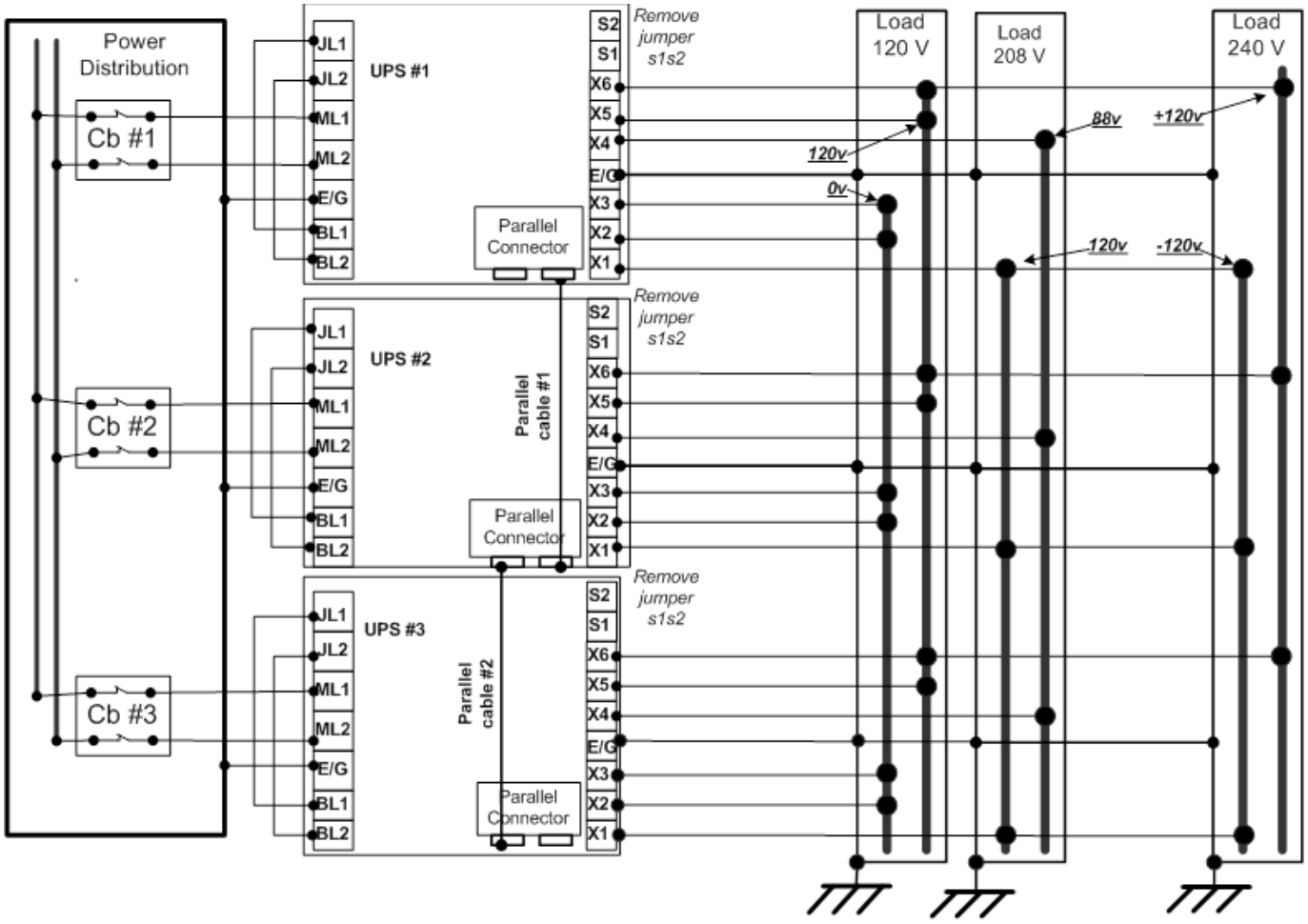

Fig. 19: Paralleling Sinergy (models with A in the part numbers)

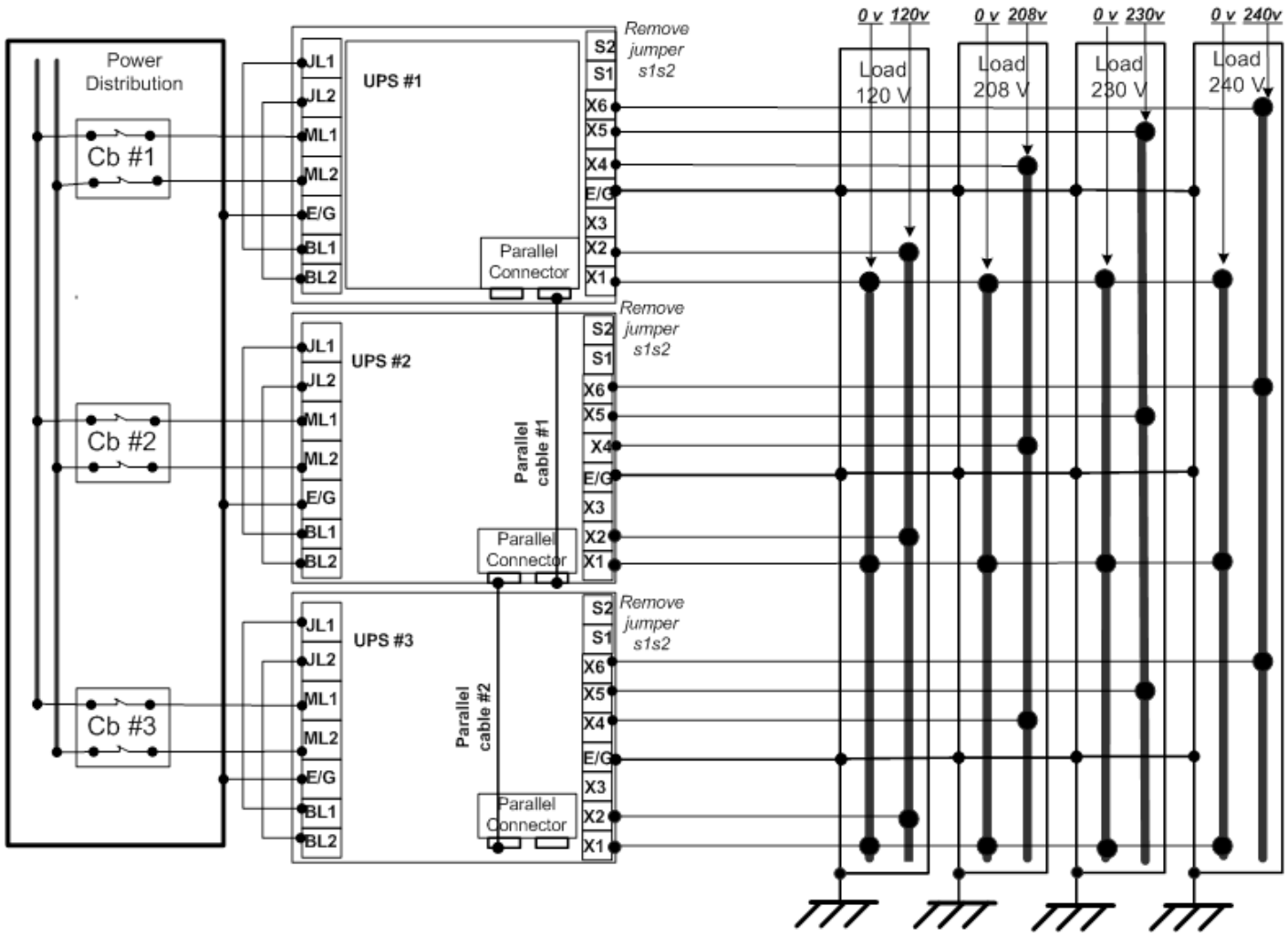

Fig. 20: Paralleling Sinergy (models with I in the part number)

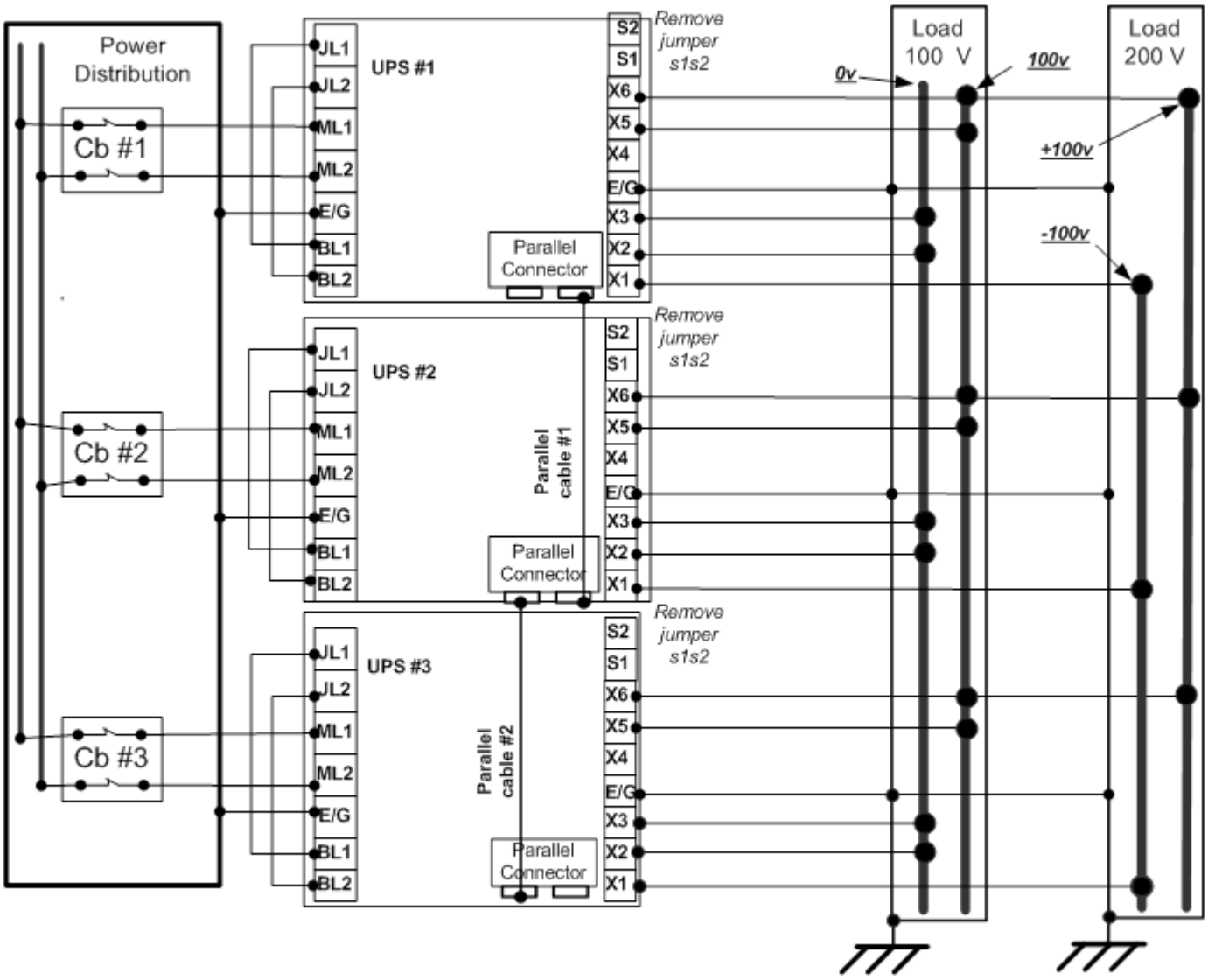

Fig. 21: Paralleling Sinergy (models with J in the part number)

Installing a Parallel System

Step A

1. Ensure that the mains supply distribution is switched OFF.

2. Ensure that all the main1/bypass input breakers are switched to “OFF” on all UPSs. All terminals, breakers and plugs of UPS can be found on the respective rear panels of UPS/batteries.

Step B

1. Remove jumper from parallel terminals (S1 & S2), from each of the UPSs blocks to be connected.

2. Connect the input terminals (per the “Connecting Power Cables” on page 10) from each of the UPSs terminal blocks to the mains distribution.

3. Connect the output terminals (per “Output Terminal Voltage” on page 13) together from each of the UPSs to the load distribution.

Step C

1. Remove cover of the parallel port of all parallel devices for linking between UPSs.

2. Use the 25-pin standard control cable to connect to one of the parallel ports (the cable is supplied with the UPS). Parallel UPS are connected in-line, not in a circle, i.e., 2 cables connect 3 UPSs, 1 cable connects 2 UPSs.

Step D

1. Close the UPS input breakers (main1/bypass) of UPS 1, then UPS 2, and UPS3.
2. Close the mains supply distribution circuit breaker. All bypass indicators should illuminate simultaneously.
3. Switch the bypass switch (located under orange cover) on the rear of UPS 1 from “OFF” to “UPS”.
4. On UPS 2 repeat step 3.
5. On UPS 3 repeat step 3.
6. Close all UPS downstream circuit breakers/fuses to the load distribution.

NOTE: *At this point all UPSs will be in parallel “BYPASS” mode. This mode will allow for full rated output of the parallel system. UPS will have the “BYPASS” LED illuminated.*

7. Press the “MENU” button on UPS 1.
8. Select submenu “CONTROL.”
9. Press “OK”, the LCD displays ‘TURN UPS TO ONLINE.”
10. Press “OK”, the UPS system will stay waiting in “BYPASS” mode.
11. Repeat step 7-10 on UPS 2 and UPS 3.

NOTE: *After a few seconds, the “BYPASS” LEDs on UPSs will extinguish and all “ON” LED’s will illuminate simultaneously, indicating that all parallel UPS inverters are running. The total load is spread evenly across all UPSs.*

Table 16. Sinergy Parallel Kits and Runtimes

Sinergy Parallel KIt Model No.	kVA	Runtime half load/full load	Part No.	Kit Includes
SE122	12	21/9	SE122XAT SE122XIT SE122XJT	(2) SE061
SE122	12	84/39	SE122XAT-2 SE122XIT-2 SE122XJT-2	(2) SE061 & (2) SEBP610-2
SE122	12	175/78	SE122XAT-4 SE122XIT-4 SE122XJT-4	(2) SE061 & (4) SEBP610-2
SE162	16	21/6	SE162XAT SE162XIT SE162XJT	(2) SE081
SE162	16	73/23	SE162XAT-2 SE162XIT-2 SE162XJT-2	(2) SE081 & (2) SEBP610-2
SE162	16	140/45	SE162XAT-4 SE162XIT-4 SE162XJT-4	(2) SE081 & (4) SEBP610-2
SE202	20	13/5	SE202XAT SE202XIT SE202XJT	(2) SE101
SE202	20	60/18	SE202XAT-2 SE202XIT-2 SE202XJT-2	(2) SE101 & (2) SEBP610-2
SE202	20	117/35	SE202XAT-4 SE202XIT-4 SE202XJT-4	(2) SE101 & (4) SEBP610-2

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